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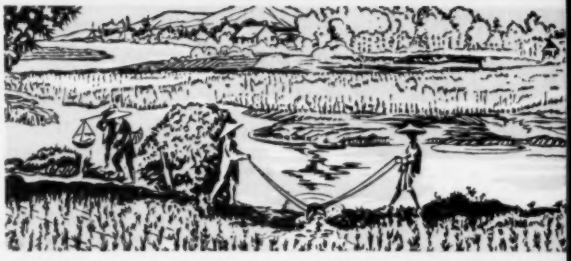

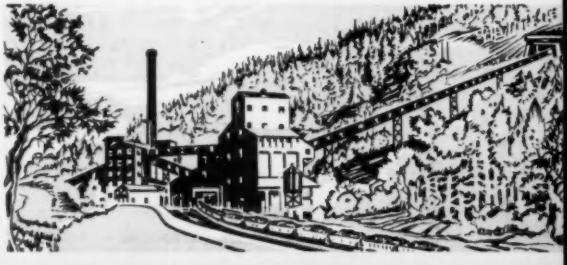

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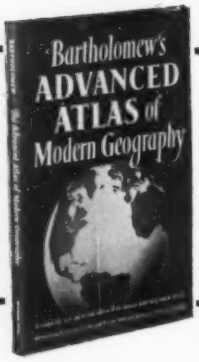

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Dr. Dyer is Associate Professor of Geography, University of Florida and a frequent contributor to geographical publications. His major interests are urban geography and geography of the Caribbean area.

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Dr. Gregor is Assistant Professor of Geography at San Jose State College, San Jose, California. He is the author of several articles on the conservation and agricultural geography of California.

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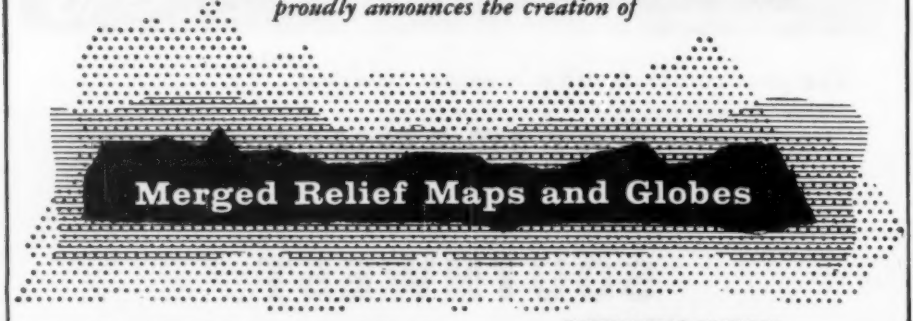

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EDITORIAL NOTES AND NEWS

The new officers of the Illinois Geographical Society are: President: Mildred I. Finney, University of Illinois, Chicago; Vice-President, Estella Wheeler, Manual High School, Peoria; Secretary-Treasurer, Herbert Zobel, Joliet Township High School and Junior College.

MAMIE L. ANDERZHON, Beye School, Oak Park, Illinois, and Associate Editor of the JOURNAL has received a Fulbright Grant and additional aid from the Institute of International Education and will spend the year 1956-57 doing geographic research in India. She will be on the All India Council for Secondary Education and will be working on their teacher education program. Her address will be 17 Curzon Road, New Delhi, India, c/o United States Educational Foundation in India.

Congratulations are in order to our many active leaders in the State Councils. In recent months we have received Bulletins from California, Montana, Pennsylvania, New Jersey, Mississippi, North Dakota, Wisconsin, Nebraska, Kansas and Virginia. These Bulletins carry many excellent articles and should be of great help to members.

The Ohio Council of Geography Teachers held its meeting in Youngstown on May 5, 1956. Among the speakers were Dr. John Wesley Coulter, University of Cincinnati, and Lindley Vickers, Naturalist of Youngstown. Among other items on the program was a review of a unit on the St. Lawrence Seaway and discussion groups to study the teaching of geography at each grade level. Miss Villa B. Smith of Cleveland is the new president.

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VOLUME LV SEPTEMBER 1956 NUMBER 6

CREATING ENVIRONMENTS FOR GEOGRAPHIC EDUCATION

EUGENIA BAXTER
Carroll Township Schools, Monongahela, Pennsylvania
KATHERINE MONTGOMERY
Greensburg Junior-Senior High School, Greensburg, Pennsylvania

Environment for geographic readiness includes many factors. It includes the child, the teacher, and the administrator, each of whom has special contributions to make. It includes the intellectual, the emotional, the spiritual and moral aspects of the child as well as the physical set-up of the classroom.

The child is the center of this geographic environment. When he first enters the school, he experiences the feeling of belonging to a larger group. He finds himself a part of a school community. When he becomes a member of a group, he takes his own place in his class and experiences a phase of geography readiness.

What is this geography readiness and when does it occur? It takes place when the learner and teacher feel comfortable. The teacher feels she can achieve her goals, and the child feels he can and wants to learn.

It is at this very early stage that the child starts to build either positive or negative attitudes toward people and places. By helping to build proper positive attitudes toward people and places in our community, state, nation, and the world, we encourage the students to learn the truth about the natural environment and social phases of living in world communities, and the interaction thereof.

With a properly created environment we help nullify such negative attitudes as prejudices toward peoples and places. The student gains an appreciation of the gifts of nature and people, together with the geography behind these gifts.

In this environment he develops skills in using the learning tools to gain geographic understandings. Among these tools are objects, specimens, models, pictures, maps, charts, statistics, and word matter. These are concrete tools which are necessary in all geography classrooms.

Experiences in Using Tools of Learning

Just as students have been guided thru a reading readiness program, so there are some essential geography experiences thru which they must be led carefully, or this created environment will be meaningless and will result in scrappy unrelated busy-work.

He must learn to read geography in the following different media:

1. He should learn to use pictures as a tool to gain information. In a nature picture, showing a desert area, the student can be directed to see why few people live in such a region.

He should learn to read activities from a culture picture.

From a picture which shows farming in a prosperous area, the student is able to tell why farming is important in this region. He can see evidences of *man's* wise use of the soil. A picture showing elements of both cultural and natural environments is a good geography picture.

2. The second media or tool for learning geography is a map. From a physical-political map he is able to apply geography learning such as, how life in the lowland regions of the Tropics differs from life in the highland regions at the same latitude because of differing elevations. For example, on the west coast of Ecuador, where there are lowlands, crops such as sugar cane and cacao are produced, while on the cooler highlands grazing is the major industry.

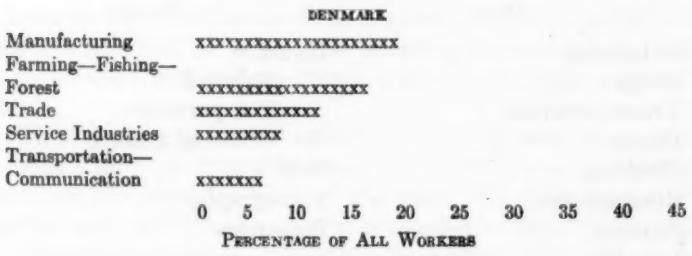
On a human use map the student learns from the key that the Ganges Valley is used for farming. From other maps such as physical-political, annual and seasonal rainfall, length of growing season, and others showing natural conditions, he is able to explain, in part, the natural factors responsible for farming in the Ganges Valley.

3. There is a definite graduation of learning difficulties in the use of charts and statistical material, ranging from the simple to the more complex. The use of these depends on the maturity level of the child.

What Can You Learn From Statistics?

Here is a chart made by the teacher to be interpreted by the student. It is very simple. It was used with a group at the beginning of the seventh grade.

WORKERS GROUPED BY INDUSTRIES[1]



———— 1. What is the most important industry of Denmark?

———— 2. What industry employs about 17 per cent of the workers?

———— 3. What industry employs 7 per cent of the workers?

———— 4. Where did the teacher get this information?

———— 5. What authority or authorities were responsible for this information?

[1] Source: McConnell and Harter, *Geography of a Working World.*

4. Word matter is a pertinent tool of learning. The student must learn to read relationships, that is, the explanation of certain man-made factors because of certain natural conditions.

Let's summarize one geography relationship using various tools answering this problem, *Why is the growing of cacao an important industry of the Gold Coast of Africa?*

The teacher may begin with a chocolate bar and then display a cacao bean. A picture of a cacao pod of actual size can be shown together with a picture showing the cacao tree in its natural environment. A map may be used to locate the cacao growing region of the Gold Coast. Other maps such as rainfall, temperature, growing season, will help explain the nature phases of the area. A graph may also be used to show the importance of the Gold Coast in the production of cacao. Finally, word matter may be used to check the findings of the pupils.

From the above study we have the following relationship:

Important cacao industry in the Gold Coast of Africa is related to location in a hot lowland; no wind; heavy rainfall (40"–80"); twelve months growing season; and fertile soil.

Here is a chart showing how children may be led to see relationships between some of man's activities and related nature items.

Some Geography Relationships

Man	*Nature*
Industries	Climate
Crops	Rainfall
Transportation	Temperature
Homes	Growing Season
Clothing	Soil
Recreations	Topography
Exports	Resources
Imports	

The major activities of man are listed in one column. In the other column some of the natural conditions responsible for man's activities are given. The children are led to realize how the activities are related to the nature items—such as crops are related to climate, soil, and topography.

Gathering Information from the Community

It is important that students learn to use their immediate community as a primary source of information. In order to find an answer to the problem "What is the geography behind the use of land in our community?" a group of boys and girls visited a nearby farm. They learned that the sandstone areas at the highest elevations were used to grow evergreens. A fruit orchard had been planted on the slopes of a hill where there was shale soil, and air drainage. In the lowland area where the loamy soils were high in lime content, a vegetable garden had been planted. A great amount of the information gathered from this trip to a farm in our community furnished us with an excellent basis for the study of similar areas of the world.

Information gathered from our world community can be useful in creating an effective learning environment. For example, our school secretary corresponds with a student of Silliman University in the Philippines. The letters she receives contain many interesting items about the cultural and natural environment of the islands. We were permitted to use the letters and pictures that were received to make a large poster. The poster was placed on a bulletin board and was referred to frequently by the children in our study of the Philippines.

SETTING UP THE PROBLEM

After an effective learning environment has been created we are ready for our unit of work. The planning, executing, evaluation, and application will be done by the teacher and pupils working together.

The first thing to do in beginning a unit of work is to set up a problem. The type of problem and the method used in solving it depend on the maturity level of the class. If a child asks a *What* question such as "What industry is carried on here?", the teacher's contribution can be "Why?"; by adding "Why?" we have turned a question into a problem.

SETTING UP A BIBLIOGRAPHY

After the problem or problems have been set up the pupils and teacher search out materials that will help them to find the answers to them. These materials include the tools of learning found in the classroom, home, and community. Evaluation of materials is also a part of this phase of learning. The evaluation of material should be guided carefully. Criteria for evaluation should be set up and followed closely. The following questions may be asked concerning materials to be used: (1) Will it help us to answer our problem? (2) Does it contain good geography? (3) What is its source?

After available materials are evaluated a bibliography is set up for the unit and is made available for classroom use.

The reference materials may be divided and filed under four major catagories; namely, textbooks, atlases, current materials, and statistics.

METHOD OF SOLVING PROBLEMS AND PRESENTING FINDINGS

The skills of *learning* to make decisions on a scientific basis and the development of critical *thinking* are strengthened by helping to decide on a method of solving problems and presenting findings to the group. The method is determined, in part, by the needs of the group and is decided upon by the teacher and pupils.

The work may be done by the entire class working together, by individuals, or by groups or committees. Regardless of the method used, each student must be held responsible for the solution of the problems set up by the class and the teacher. There should be

minimum learnings required by all. The depth of the requirements depends on the individual's ability and achievement level.

If the work is done in committees, intensive work on one phase of the big problem is attempted by each committee in order that all may contribute to the whole unit.

After working for a time in committees, the pupils will usually encounter trouble. They should then assemble for a first progress report and for suggestions for further refinement of their work.

Chart Showing Progress Report on Problem

Problem	Stage at which we have arrived toward solving the problem	New Problems	Suggestions by class and teacher to solve new problems
What is the geography behind the industries in the Ruhr Valley?	We are writing a report. We want to make geographic relationships. We have this started.	Where can we find material for this problem. Most geographies have just general information.	Best source focus. Read Lutz's letter to seventh grade. He tells of the industries.

Such problems as "We want to make a chart of the products of New South Wales and the geography behind these products. We don't have enough material. Where can we find more?" will arise. The class and teacher should also discuss methods of presentation at this meeting.

After another work period the groups are ready to share their findings. The method of presentation will vary. If there are committee reports, they should be followed by group discussion.

Each committee presentation should be evaluated in respect to:

Evaluation of Committee Reports

1. Growth of committee members in knowledges, skills, and ease of presentation
2. Accomplishments of committee
3. Quality of work presented
4. Tools used in building project
5. Knowledges shared with class, and
6. Interest displayed by group

These criteria may be applied to individual presentation and and class discussions.

The next step is to summarize the learnings. The students and

teacher list the minimum learnings expected of each student. This is sometimes in outline form and is placed on the blackboard by one of the committee secretaries. It is copied for the records by a class secretary.

Altho evaluation is a continuous process, a summarized check of the growth in skills and knowledges should be made. A formal written evaluation may be given. As the class progresses in the year's work, the pupils and teacher will constantly strive to strengthen and improve study habits. When students become skillful in their use of the tools of learning and are permitted to actively participate in solving important problems, they will have a feeling of deep and satisfying achievement in their work.

There should also be growth in social competence and citizenship. An example of this is shown in the following incident. In one eighth grade, we devised a check to see whether our geography lessons were helping us develop into mature productive citizens. The seven characteristics of better teaching from "Toward Better Teaching," 1949 YEARBOOK FOR ASSOCIATION OF SUPERVISION AND CURRICULUM DEVELOPMENT were copied. After reading these, students drew up the following set of questions to check their own growth.

How did our geography lessons help us to become better citizens of our classroom, community, state, and country?

1. How did our lessons help me feel secure as a member of a group? Why?
2. What satisfaction did I gain while studying from this unit?
3. How did our lessons help us to work better with other people in committees and groups?
4. How did our experiences in democratic living in our classroom help us become better future citizens?
5. How will our experiences in our classroom help us meet the responsibilities of later life?
6. How and why did our lessons make us more original thinkers?
7. How was I able to help with the planning of our Teacher-Pupil Planned Unit?
8. How was I able to make the Unit an interesting one, so others could help us with it and enjoy it while learning?
9. Did I help others grow as more mature learners?
10. In what ways did I have the opportunity to help evaluate our

growth in Knowledges, Skills, and the Ability to Use the Different Tools of Learning?

Sometimes questions such as these are asked.

What do you feel could have been done to make our lessons more effective?

(a) What could you have done?

(b) What could the teacher have done?

In summary, three major points in "Creating Environments for Geographic Learnings" have been brought out.

1. Environments for Geographic Readiness.
2. Uses made of this created environment.
3. Evaluation and application.

URBAN GROWTH IN FLORIDA; EXEMPLIFIED BY LAKELAND

DONALD R. DYER
University of Florida

The tenth largest city in Florida in 1950 was Lakeland, numbering 30,851 within its city limits. An additional estimated 5,000 lived in the urban-fringe area. Fairly typical of the extremely rapid growth of Florida, Lakeland's population increased by 40 per cent between 1940 and 1950 (Fig. 1). Such an increase was a little below the state's increase of 46.1 per cent and the state's urban increase of 49.8 per cent but was above the average increase of 34.4 per cent for the ten largest cities of Florida.

Growth of Lakeland

Founded less than 75 years ago, in 1884, Lakeland at first lagged behind the county seat, Bartow, which had been connected to Tampa Bay by a narrow-gauge railway in 1882. Lakeland's birth resulted from the courtship of the Atlantic Coast Line railroad by the Lakeland Improvement Society, Incorporated, with gifts of land for right-of-way, large yards and terminal, and of a privately-built station.[1] Bartow, also located on the north-south ACL route, increased largely because of its function as the county seat located

[1] Harry Gardner Cutler, ed., *History of Florida; Past and Present.* Chicago and New York, 1923, Vol. I, p. 457.

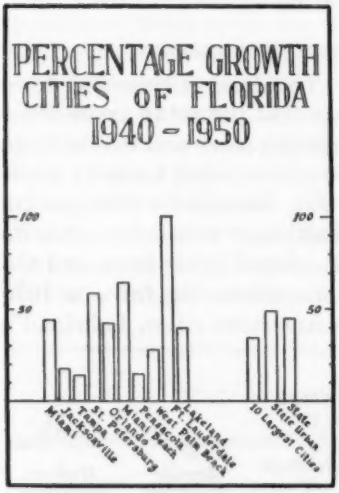


FIG. 1. Lakeland's increase of about 40 per cent between 1940 and 1950 lies between the state's increase of 46 per cent and the average increase of 34 per cent for the 10 largest cities of the state. This growth compares with an increase of only 14.5 per cent for the United States as a whole.

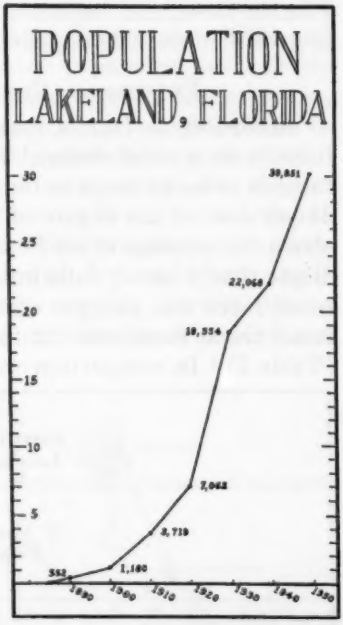


FIG. 2. Growth of population in Lakeland has been rapid from its founding in 1884 to the present. Greatest increases have occurred during the Florida boom of the 1920s and during the 1940s.

near the center of the large county and partly because of the beginning of phosphate mining after 1891. After 1905, however, when Lakeland's more favorable position on the cross-peninsular railway route from Tampa Bay to the upper St. Johns valley was assured, Lakeland's population quickly exceeded Bartow's. Moreover, Lakeland benefited from its position as a railroad division point with resultant large foundry and machine shops, as well as from lumber mills and several large citrus packing houses. Citrus culture had retreated southward down the lake-studded peninsula in front of serious freezes until the main belt of production lay roughly thru Lakeland in an east-west direction.

Starting the twentieth century with less than 1,200 inhabitants, Lakeland passed 7,000 in 1920 after slowing down a little between 1910 and 1920, spurted to more than 18,000 by 1930 during the

Florida boom, and slackened to 22,000 in 1940 (Fig. 2). The upturn in growth since 1940 appears to be continuing toward 1960.

FUNCTIONAL CHARACTERISTICS OF LAKELAND

According to Hart's recent study, Lakeland is classified functionally as a retail center.[2] This means that the retail trade labor force is twice as large as the manufacturing force and that at least 21 per cent of the employed labor force is in retail trade (1 point above the average of all Southern cities). Lakeland's statistics indicate that it barely falls into this definition of retail city, since its retail force was 21.3 per cent of the employed labor force and the retail trade force was 2.2 times the manufacturing force in 1950 (Table I).[3] In comparison with other American cities, Lakeland's

TABLE I

EMPLOYMENT STRUCTURE
Lakeland, Florida, 1950

	Number Employed	*Percentage of Employed Labor Force*	*Average Percentage U.S. Cities*	*Median Percentage Southern Cities*
Retail trade	2,533	21.3	19.2	20
Wholesale trade	667	5.6	3.9	4
Manufacturing	1,147	9.7	27.1	17
Transportation and communication	1,073	9.0	7.1	8
Professional services	1,411	11.9	11.1	12
Other	5,047	42.5	31.6	39
	11,878	100.0	100.0	100

employment is a little above average in retail trade, wholesale trade, transportation and communication, and professional and related services; in no instances is the difference striking. In manufacturing, however, Lakeland's employment is far below the U.S. average and considerably below the average of Southern cities. One might say, perhaps, that Lakeland is typical of non-manufacturing cities.

[2] John Fraser Hart, "Functions and Occupational Structure of Cities of the American South." *Annals of the Association of American Geographers*, Vol. XLV (Sept. 1955), p. 274.

[3] U. S. Bureau of the Census, *County and City Data Book: 1952*. Washington, D.C., 1953, p. 452.

Viewed subjectively Lakeland does present the appearance of a retail trade center. Not only do the large department stores and specialized shops serve the sizeable urban population and a fairly large population on neighboring farms and in small nearby towns, but also a winter seasonal increase of several thousand tourists. In addition to its retail function, however, Lakeland is an important wholesale center for a number of towns in the central lake district of Florida, competing with Tampa to the west 35 miles and Orlando to the northeast 65 miles (Fig. 3). Altho the percentage of employment in manufacturing is not large, nevertheless manufacturing is increasing in importance, particularly outside the city limits. Within a five-mile radius of Lakeland are nine citrus canning and

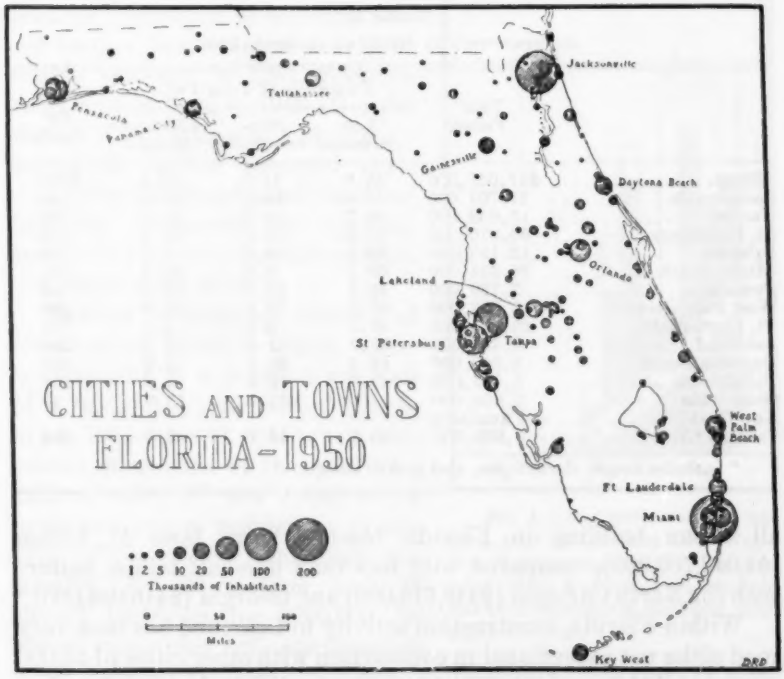


FIG. 3. Lakeland is located in the midst of many large and small towns in the central lake district of peninsular Florida. Its trade area overlaps with the larger trading areas of Tampa, 35 miles to the west, and Orlando, 65 miles to the northeast.

packing plants, two citrus concentrate plants, a fertilizer factory, and two machinery-manufacturing plants.

Construction Activity in Florida

Evidence of growth in Florida and in Lakeland is found not only in increases in population but also in construction activity. In addition to being an evidence of current buying power, construction activity is essentially a preparation for a long-time, future expectancy of tomorrow's economic prospects. In the national picture Florida figures strong in the sustained high-level building activity of recent years. Florida has led the Southeast in building as in population growth. From 1951 thru 1953 the total value of

Table II

CONSTRUCTION IN CITIES OF FLORIDA, 1950

	Total Value	*Percentage of Total Value*			*Value Per Capita*
		**New residences*	*Non-residential*	*Additions/ Repairs*	
Miami	$47,037,000	55.8	31.9	12.3	$188
Jacksonville	21,701,000	45.9	38.1	16.0	106
Tampa	15,658,000	58.7	25.6	15.7	126
St. Petersburg	30,870,000	72.0	17.7	10.3	319
Orlando	12,155,000	75.6	16.4	8.0	232
Miami Beach	26,854,000	69.5	8.3	22.2	580
Pensacola	2,739,000	48.8	32.7	18.5	63
West Palm Beach	15,333,000	67.9	18.1	14.0	356
Ft. Lauderdale	28,693,000	86.8	8.8	4.4	791
Lakeland	6,438,000	76.1	11.6	12.3	209
Daytona Beach	5,660,000	64.2	22.5	13.3	187
Tallahassee	5,572,000	43.3	49.8	6.9	204
Gainesville	2,666,000	53.6	33.1	13.3	99
Key West	not available				
Panama City	3,968,000	55.5	39.1	5.4	154

* Includes hotels, dormitories, and tourist cabins.

all urban building in Florida reached more than $1 billion ($1,043,760,000), compared with less than one-half billion dollars each for North Carolina ($448,615,000) and Georgia ($416,934,000).[4]

Within Florida, construction activity in Lakeland has been very good altho not exceptional in comparison with other cities of 25,000 or more inhabitants. Ranking tenth in population, Lakeland ranked

[4] "Construction in the Southeast: 1951, 1952, 1953." *Georgia Business*, Vol. XIII (Feb., 1954), p. 1.

ninth in total value of construction in 1950, but sixth in average value of construction per capita (Table II). The giants in high value of construction per capita were Ft. Lauderdale, Miami Beach, and West Palm Beach on the lower east coast, and St. Petersburg on the west coast of Florida. Orlando's average of $233 per capita slightly exceeded Lakeland's $208 in 1950 in central Florida. A large part of the explanation of high values in Ft. Lauderdale and in Miami Beach lies in the large-scale construction of large hotels and apartment buildings. On the other hand, construction activity in Lakeland is predominantly devoted to one-family residences.

Construction growth in Lakeland, as registered in building-permit figures, had reached nearly $1 million annually in 1941, resumed its $1 million-level in 1945 after the World War II slump, and has exceeded $5 million annually since 1949 (Fig. 4). Residential construction has accounted for approximately 70 per cent of total construction value since 1950.

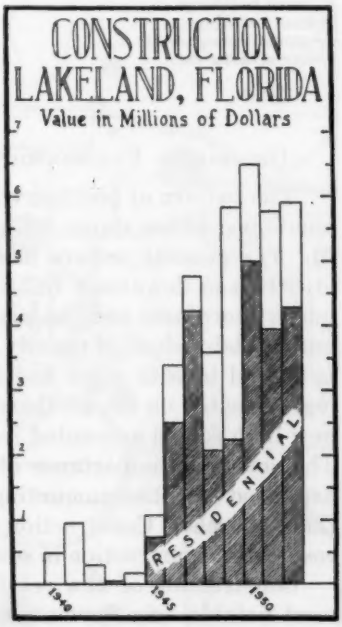


FIG. 4. Construction activity has been great in Lakeland since World War II, exceeding $5 million annually since 1949. Residential construction has been particularly dominant since 1950.

Several interesting aspects of construction growth within Lakeland appear in a detailed analysis of a recent 1½-year period (January 1, 1953-June 30, 1954). Approximately $6 million of the total $9½ million value of new construction pertained to new residences (Table III). Four school buildings accounted for $1 million and 12 church buildings for $700,000. In other categories of construction were included 23 store buildings (more than $1 million), 12 office buildings, and 10 gasoline service stations in a short 1½-year period. Truly, construction touched all phases of urban growth markedly, excepting manufacturing to a lesser degree.

TABLE III

NEW CONSTRUCTION, LAKELAND, FLORIDA

January, 1953–June, 1954

	Number	*Value*
1–family residences	611	$5,743,450
2–family residences	22	256,600
Apartment buildings	3	80,000
Office buildings	11	196,400
Store buildings	23	1,183,600
Gasoline service stations	10	143,879
Church buildings	12	707,400
School buildings	4	1,032,340
Manufacturing plants	1	155,450
Other structures	3	42,000
Total	700	9,541,119

GEOGRAPHIC PATTERN OF CONSTRUCTION WITHIN LAKELAND

The pattern of building construction during the 1½-year period mentioned above shows differential growth within Lakeland (Fig. 5).[5] The general pattern has been the expansion of business construction in downtown Lakeland and to a lesser degree along the major thorofares and the large-scale residential construction in the outer subdivisions of the city. Construction of schools and churches is spread in both inner and outer sections. Florida Southern College, situated on the northern side of Lake Hollingsworth, and the new high school accounted for about one-half million dollars each. The continued importance of downtown churches is evidenced by expanded facilities amounting to $25,000, $180,000, and $300,000 at three churches. Construction of church buildings has followed new residential construction in some outlying sections.

Construction of new residences is widespread in Lakeland, the most notable developments being near the edge of the city. Scattered construction is found, however, in the intermediate zone between the downtown area and the outer sections; two-family units of residential construction are largely concentrated in this zone. The largest housing developments are in the northern and southern sections of the city near the city limits, continuing the trend of north-south development along the broad north-south ridge that is topped by the smallest lakes (Fig. 5). Low-lying and often poorly-drained

[5] An excellent source of information on the nature and distribution of growth within a city is the file of building permits kept by the city building inspector. Geographers and others interested in the pattern of city growth can make valuable use of such data.

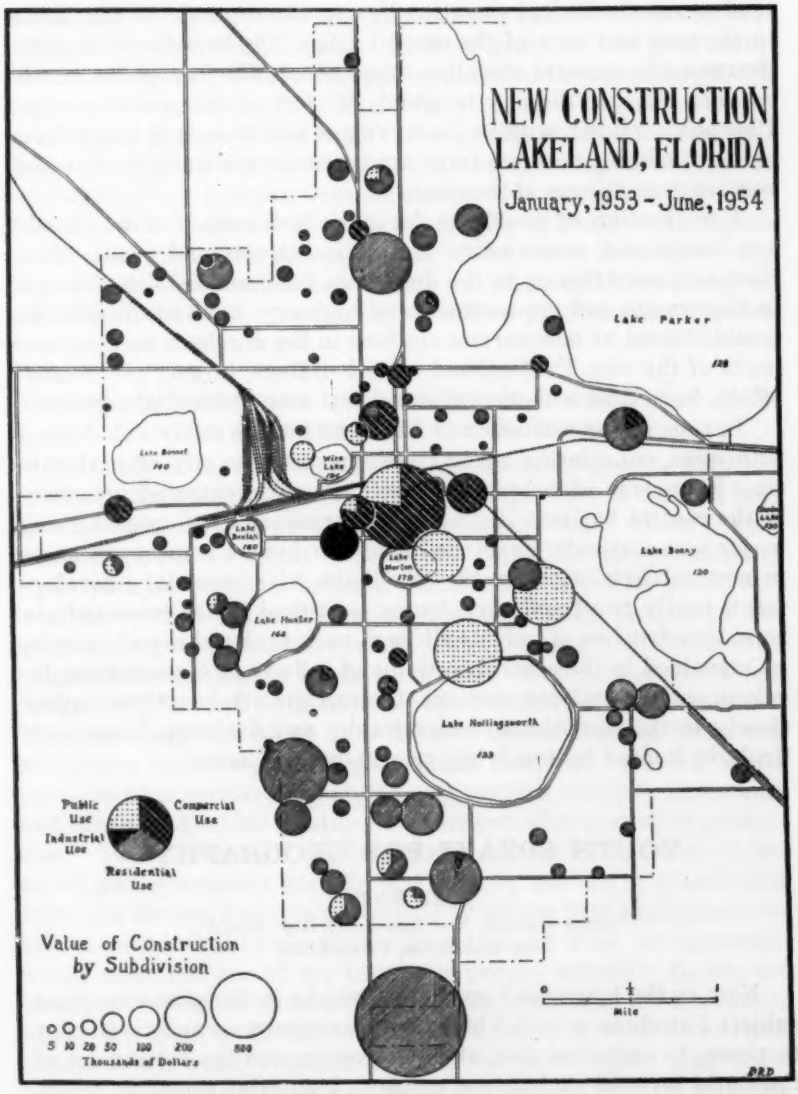


FIG. 5. New construction within Lakeland has been widespread, representing different types and values in various subdivisions. Commercial construction has been large in the downtown area and along major routes; residential construction has been greatest in outer subdivisions.

land at about 150-feet elevation lies on and beyond the city limits to the east and west of the central ridge. The broad central ridge decreases in general elevation from about 230 feet at the northwestern edge of the city to about 190 feet at the southern edge. Phosphate mining, with its linear ridges and lakes that result from open-pit mining, occupies large areas outside the southwestern and southeastern fringes of the city.

Construction of buildings for new businesses follows closely new residential construction and major streets and roads, other than new construction in the downtown business district. Changes in alignments and improvements of highways have resulted in the establishment of new service stations in the northern and western parts of the city. Professional office buildings, largely physicians' offices, have been constructed in several new residential sections.

In sum, new construction in Lakeland follows fairly well-defined principles, considering rapid developments in a city of moderate size. Expansion of commercial facilities is concentrated primarily in the central business district with secondary development along major access streets. Construction of new houses is most extensive in new subdivisions near the city limits with secondary development, partly two-family residences, scattered in the intermediate zone. Construction of public buildings, such as churches and schools, is intensified in the central section and follows new residential developments in outlying sections. Overall growth is related rather closely to the conditions of topography and drainage, being particularly limited by low-lying, poorly-drained areas.

YOUTH SPEAKS FOR GEOGRAPHY*

John Ross
Honor Student, New Kensington High School
New Kensington, Pennsylvania

Next to the language I speak, geography is the most important subject I study in school. This is true because geography is the key to peace, to understanding of other people, and the betterment of the world thru the exchange of cultural, industrial, scientific, political, and medical ideas. Unfortunately, geography is not generally

* This paper was presented at the annual spring meeting of the Pennsylvania Council of Geography Teachers held at Lock Haven State Teachers College, April 21.

taught in the high schools of our nation, a nation now occupying the position of world leadership. In other great nations geography is a full time, compulsory, long-pants subject at the secondary level. As a senior high school student, I believe that a program of geographic instruction should begin in the grades and continue on thru the senior year of high school. One could not possibly learn all there is to know about a region when he studies it at any grade level. For instance, if a student studies the geography of India in the eighth grade and is not given an opportunity to return to investigate conditions within India when he is in high school, he will have an understanding of India to be sure, but it will be an elementary understanding, not a mature one.

ELEMENTARY INSTRUCTION IN GEOGRAPHY IS INADEQUATE TO MEET NEEDS OF SENIOR HIGH SCHOOL STUDENTS

It is only at the high school level that students possess sufficient intellectual maturity to grasp what geography has to teach. I had an experience in my problems of democracy class which I shall relate to you in an effort to prove my point. We were discussing India and its position between East and West. The point was brought up that India did not need a large army because of the geographic protection afforded it. One boy, who has not studied geography since eighth grade, then said, "Communist China has conquered Tibet and could move troops from Tibet to India easily." When this boy was asked if he did not believe that the Himalaya Mountains and the general geographic condition of Tibet would prove to be a barrier he said, "No, in modern warfare, mountains and other geographic conditions no longer offer a country protection." True, in modern warfare planes can fly to any area of the world and completely destroy that area by the use of atomic and hydrogen bombs. But it is unrealistic to believe that any aggressive nation would want to completely devastate any area. An aggressor would want the use of the country's people, industry, farms, air bases, technological know-how, etc. I was amazed at his statement, to say the least, so I went to the geography room after school and copied down some statements made by Dr. Cressey and other prominent geographers which stated just the opposite of what my seemingly anti-geography classmate had asserted. When I read these statements in class, I believe that I convinced everyone—everyone but this one boy who subbornly maintained that the

Himalaya Mountains would not be any greater barrier for a modern army to march across than would be any other land area. This little episode definitely proved to me that the elementary geography—the geography studied in eighth grade—was very inadequate in meeting the geographic needs of a senior high school student. It also convinced me that no one can pick up geography on the fly. Geography concepts can only be obtained by intensive study. Geography is more than an elementary subject. No one could claim that geography does not have a place in the high school curriculum for the use of college textbooks, references, and maximum assignments challenge the best minds we have. In developing the units that we plan together our classroom becomes a workshop or laboratory. Atlases, maps, compasses, rulers, and reference materials are made available for our use in working out the various activities that we have set up. At times additional reference books are brought to the geography classroom from the library. Many of the skills we learn in our research and laboratory work are useful in our English, foreign language, problems of democracy, and other classes.

Educators Need to Understand the Value of Geography

Because of geography's importance, I believe that it should be developed where it does not exist and strengthened where it does exist. Many of our educators need to develop a far greater respect for the validity and value of geography as a field of knowledge. When one person who occupies a rather high position in my high school found out that I elected geography, she asked me, "Why are you of all people studying geography—it is such a snap course (many educators consider geography as an elementary grade subject)—why didn't you take physics?" Well—after I delivered a long dissertation on the importance of geography and why it should be a mandate, she said, "I still don't think an *A* student should take geography." She left before I could say anything else. But I buttonholed her in her office a short time later and told her that geography was not a snap course and that everyone should study geography.

Fortunately, most people I talk to about geography are not against it, for when I was talking to a Mr. Simon, president and publisher of one of our local newspapers who incidentally was one of the first newspapermen to tour Russia and who has recently returned from a South American tour, he stated that one of the

greatest difficulties he has to cope with when he speaks to a group is to get them to understand where the country he is speaking about is located. He also stated that it was surprising just how little people knew about geography. To emphasize this point even more, Leopoldo Porzecanski, a foreign exchange student from Uruguay now studying at my high school, would have to draw an imaginary map in the air, locate Brazil, and then say, "My country is right here." Another person to whom I talked at a youth conference on foreign affairs which I recently attended who felt that geography was very important was Mr. Arthur K. Watson, president of I.B.M. He said that in order to understand people we must know their language and their geography. And, of course, I am pleased that the administrators of my high school are aware of the unique value of geography and geographic thinking as avenues for use by high school students in understanding their needs and problems and the problems of the local community and world communities.

But why have not administrators of all schools become aware of this great geographic need? Why haven't the administrators of my high school and all other high schools made geography a mandate? I do not know. Whether or not our traditional high school can become elastic enough in philosophy and practice to give geography the position it deserves in our curriculum depends largely upon the administrators. Certainly, if courses in geography are offered, students will elect them. In my high school about one-third of the senior class elected geography, notwithstanding the fact that we have twenty-seven different elective subjects open to seniors.

WHAT GEOGRAPHY CAN DO FOR HIGH SCHOOL STUDENTS

Our educators say that they are trying to make us, today's students, well-informed, thinking citizens of tomorrow. If we are to understand the world in which we live, if we are to think and act intelligently in a world suddenly grown small, where the other countries of the world are no longer days and weeks but only hours away, we must be able to interpret geographically what we hear, read, and see. I hope that our educators soon realize the importance of geography for it is difficult to believe that a nation whose citizens are not aware of realistic and dynamic geographic relations can long continue as a great power leading the world.

A question which may have come to your mind is, "What specifically can the study of geography do for high school students?"

Geographic understandings and their applications can render valuable service to high school students in the selection of one's occupation. The study of geography suggests the possibilities of new worlds to explore and new ways of life to live. Does his community offer him suitable opportunities for his talent? Are there health hazards in the community such as high humidity, high altitudes, high temperatures, or others which cause illness that could be avoided in other types of environment? Thru the study of geography the student gains a better understanding of his environment. Geography contributes to a deeper understanding of people. It contributes to a fuller understanding of industries in various parts of the world, the materials that each region produces, and the surpluses that are available for use by people in other regions. Society progresses when it understands how the people in a particular environment solve their problems of making a living. Another factor which cannot be overlooked is that today there are numerous careers for people trained in geography. Both business and government have expanded their recognition of the vital importance of geography. Foreign investment firms, manufacturing companies, chain grocery stores, and mail order houses hire geographers to study and advise on market areas. Airlines employ trained geographers to study traffic origin and flow. Trained geographers are also engaged in city planning, highway planning, conservation programs, programs of resource development, and national planning projects.

I do not want you to think that I am the only high school student who feels that geography is important. I would like to read to you some comments made by other students in my class concerning geography.

1. The study of geography helps us to have greater respect, sympathy, and understanding of other people.
2. It gives us a better understanding of the interdependence of our community with other communities, local, state, national, and international.
3. We are better able to understand current events. We can see the geography behind the news.
4. It helps to make one more concerned about the conservation of our natural resources.
5. In case of war, geographic understanding of our enemy is an absolute necessity.

I would like to spend a few moments enlarging upon the last statement. For wars, while they may start in the minds of men, are fought out in the world of the material—of jungle and marsh, wind and sand, mountains and plains, where a storm or rain can do more to turn the fortunes of a battle than a dozen impassioned speeches, and where a fore-knowledge of the beach conditions along the enemy's coast can be more comforting and rewarding to an invading army than the promise of supporting naval bombardment. Undoubtedly, I will serve in the armed forces and I feel that I should have a better understanding of our country and other countries of the world. I want to know all the geography I possibly can about any country that I may some day have to fight. I do not want just a short briefing about the country while I am on the boat preparing for an invasion. I want to have every opportunity to survive. I feel that every other high school student and I have an undeniable right to demand that geography be taught in every high school in the nation. If we are to become good citizens and future leaders in business and government, we should have a mature acquaintance with the geography of our country and the world of which we are a part.

History, a narrative of the past, is a required subject. Why then should not geography, a study of the present and the most logical way to plan for the betterment of the future socially, culturally, industrially, scientifically, and agriculturally, be a required subject in the high schools of the United States of America?

HUMAN WASTE AND SOIL PRODUCTIVITY

H. PHILLIP BACON
Teachers College, Columbia University

Modern man, with all his technological and mechanical skills, has devised ingenious methods of wresting from nature the productivity of the land. Much of the fertility of the soil, built upon centuries of life, now flows down the rivers of the western world to lie in uselessness in the depths of the sea, or is burned upon the funeral pyres of the incinerator.

Until the development of water-borne sewage, much of the waste material of human life was returned to the land. Nitrogen and other nutrients taken from the soil by plants were brought back in the form of human manure collected from the cities. The wide-

spread use of water-borne sewage systems not only robbed the soil of this fertilizing material, but also brought new problems in the necessity of disposing of tons of sludge. Municipal sewage sludge is usually dumped into oceans, lakes, or rivers, or is slowly dried on large and expensive beds before being burned. An alternative to this procedure is to find a means of returning this valuable organic matter to soils which have been gradually sapped of their productivity due to a deficiency of water holding humus, macronutrients, and trace elements.

Jean Valjean, in Victor Hugo's *Les Miserables,* questioned the advisability of dumping the human manure of Paris into the Seine. He overstated, but nevertheless eloquently expressd the value of this organic matter in saying:

> Do you know what those piles of ordure are, collected at the corners of streets, those carts of mud carried off at night from the streets, the frightful barrels of the night man, and the fetid streams of subterranean mud which the pavement conceals from you? All this is a flowering field, it is green grass, it is the satisfied lowing of heavy kine, at night it is perfumed hay, it is gilded wheat, it is bread on your table, it is warm blood in your veins, it is health, it is joy, it is life.

Use in the Orient and Europe

Intensive agriculture has been carried on for thirty or forty centuries in parts of the Orient. Year after year the same land has been tilled and the same crops raised without any real deterioration of soil productivity. Thruout these millenniums of intensive agriculture, Oriental farmers have had access to little or no mineral fertilizers. In order to survive it would have been impossible for them to have tolerated the waste accompanying western sanitary practices.

Other than the benefits his land derives from the minerals in his irrigation water and the mud he dredges from canals, the Oriental is almost entirely dependent upon organic fertilizers in carrying on his agriculture. This fertilizer consists of the excreta of his family, the manure of his animals, and the dung that his family scrupulously gleans from the country roads.

To preserve his precious supply of fertilizer, the Chinese farmer utilizes a large stone-lined pit with a hard-packed bottom. This pit serves as a combination pig pen and latrine. The farmer usually has too little vegetable matter available to serve as bedding for his pig, so each day he spreads a fresh layer of earth under the animal. The average Chinese farm family keeps only a single pig;

thus, the animal is able to obtain his subsistence from the freshly passed excreta of the family, waste from the kitchen, the gatherings of manure from the roads, and whatever roughage that may be available from the fields. All of this material is digested by the pig and converted to pork and to the farmer's growing stock of fertilizer. Because his fertilizer pit contains such large quantities of soil, the farmer is in reality preparing a type of compost, substituting earth for straw. An analysis of fertilizers prepared in this manner shows them to be no more rich in plant foods than high quality garden soil.

The collecting, drying, and selling of human feces is one of the important business enterprises in the large urban agglomerations of the Far East. Prior to the Second World War, when three or four Chinese dollars were still exchanged for one American dollar, the dried feces business of Peiping amounted to several million Chinese dollars annually. Thus, there is a revolving system in operation in which plant foods move into the city from the countryside and in return nitrogen and other plant nutrients, in the form of night soil, move back to the farms from the city. This practice has resulted in rings of fertility surrounding the large cities, with the greenest and richest fields lying closest to the source of fertilizer.

In the years before the Second World War the Japanese were placing increasing emphasis on chemical fertilizers altho the utilization of night soil was still widespread. Since 1941, however, chemicals have been at a premium and the use of human manure is a virtual necessity in the maintenance of soil productivity in their paddy fields and truck lands. During this period the use of night soil in Japanese manure consumption has increased nearly 33 per cent.

Before the large scale development of water-borne sewage disposal systems in Europe, sewage farming was a widely adopted technique for disposing of human excrement. Irrigation with sewage was practiced in Edinburgh, Scotland, for over two centuries and in Breslau, Germany, since the middle of the sixteenth century.

These early European city farms utilized raw sewage, which is today recognized as dangerous for hygienic reasons. It is interesting to note, however, that some of the early farms have continued to operate where conditions were especially favorable. The two most famous examples in Europe are the sewage farms of Paris and

Berlin. Altho increasing land values and the adoption of other means of sewage disposal have reduced their size, the one time great extent of land covered by these farms may be noted. Paris in 1924 had 12,584 acres of sewage farms in operation and in 1910, Berlin's sewage farms covered more than 21,000 acres.

USE IN THE UNITED STATES

In the United States there has never been as widespread use of human excrement for fertilizer as has been the case in the Far East and Europe. This is, no doubt, the result of a combination of factors. With ample acreage available for exploitation, Americans have continued to maintain pioneer attitudes toward the land. Attitudes which recognize the necessity of maintaining the productivity of the soil have developed slowly. Other factors involved may be briefly noted: 1) an aesthetic dislike of the idea of using sewage due to its source; 2) the fear that it will have a disagreeable odor; 3) a concern over health, as raw sewage is known to be a carrier of pathogenic bacteria; 4) the high grease content of raw sewage which clogs soils and tends to produce acidity; 5) a failure to appreciate the value of sludge as humus, combined with an inadequate understanding of the need of many soils for such humus; 6) a lack of techniques for handling and using sludge as a fertilizing material; 7) the expense involved in purchasing the equipment to dry, grind, and package sludge; and 8) a failure to acquaint the public with its advantages as a means of improving the quality of the soil.

In an early report on the utilization of human manure in the United States, the installation of a sewage irrigation farm at Cheyenne, Wyoming, in 1883, was referred to as the pioneer in the United States in the municipal use of sewage for farming. By 1899 similar systems were in operation in Colorado Springs and Trinidad, Colorado; Fresno, Pasadena, Los Angeles, Santa Rosa, and Stockton, California; Salt Lake City, Utah; and Helena, Montana. Today efficient municipal sewage irrigation farms can compete with the other recognized methods of sewage disposal only where there is cheap land available and water is scarce and hence valuable. Therefore, large scale sewage farming seems necessarily restricted to the semi-arid regions of the Southwest.

This does not mean, however, that human manure is not a suitable fertilizing material for the remaining portions of the

United States. At the turn of the twentieth century even raw sewage was utilized in the humid east. In 1909, for example, the Baltimore Commissioner of Public Health reported that private contractors were hired to dispose of 61,748 barge loads of fecal matter from the city's cesspools. The barges were towed eight miles down the Patapsco River, where their contents were dumped into lagoons. Farmers from the surrounding countryside would then come to the lagoons with carts and wagons, purchasing sludge from the contractors for $1.65 per thousand gallons. The sludge was used to fertilize such crops as cabbage, kale, tomatoes, potatoes, and spinach. Despite extremely offensive odors and hordes of flies, the contractors were said to have enjoyed a profitable business until the completion of Baltimore's sewage system terminated their contracts. One can only speculate as to the consequences of health arising from the utilization of untreated night soil in fertilizing vegetables that might have been eaten raw.

In the United States today only a few communities, such as Milwaukee and Pasadena, are making an adequate attempt to salvage the plant nutrients available in their municipal sewage. In Pasadena, for example, the locally produced fertilizer, "Nitrogenic," was ready for the market in 1928. Since that date it has been successfully used in fertilizing the citrus groves and golf courses of the neighboring California counties. The scattered and generally small scale practice of preparing fertilizers from urban sewage, however, is indicative of the waste so typical of western culture.

PROPERTIES OF SEWAGE SLUDGE

Benefits to be derived from the use of sewage sludge as fertilizer have most often been claimed as the result of the sludge being a source of nitrogen, phosphorus, potash, and other plant nutrients. Many farmers who have used sewage fertilizers, however, have noted that the results obtained could not be fully understood solely in the light of either the mineral content or the plant food nutrients available in the sludge. The results of the continued use of these fertilizers are more likely due to the effect of the sludge in improving the structure of the soil. This is especially evident in clays, where more air is allowed to enter which stimulates the oxidation of the organic matter by soil organisms, and in sandy soil, where the increased humus content adds materially to the

moisture holding capacity of the soil. In addition to its principal fertilizing ingredients, sludge also contains the trace elements recognized by plant physiologists as essential to plant growth. The quantity of trace elements found in sludge is small enough to prevent their poisoning the soil, but they are in sufficient quantity to be of real importance in the aiding of plant growth.

Despite these qualities, human manure cannot be thought of as a truly balanced plant food. It does not contain large quantities of minerals, so crop yields cannot be as great as with the application of mineral fertilizers. On the other hand, for many years farmers have maintained that mineral fertilizers tend to "burn out" the soil. What is meant is that mineral fertilizer stimulates the destruction of organic matter, thus quickly making available plant food. This, of course, results in temporarily increased crop yields. At the same time, however, it causes a slight reduction in the fertility of the soil. Over a period of years then, there is a tendency for chemical fertilizers, when used alone, to bring about a gradual decline in soil productivity. Therefore, a combination of mineral fertilizer and sludge seems to be the ideal fertilizer and soil builder. The minerals will aid in increasing crop yields and the organic humus of the sludge will prevent loss of soil fertility.

Questions of Disease and Economic Feasibility

Some of the reasons for the failure to utilize human manure were listed above. Most of these objections can be combated provided sufficient attention is given to the technology of handling and properly using sewage sludge. Even the natural distaste most people express for working with such material can be overcome with an understanding of the benefits to be derived from its use. The questions of disease and economic feasibility, however, are sufficiently important to be examined in further detail.

Fecal-borne diseases might be called an occupational hazard in parts of the Far East. All four of these diseases—hookworm, liver fluke, intestinal fluke, and blood fluke—are associated with the practice of using human excrement as a part of the agricultural system. Thus, the very practice that maintains the productivity of their soil is responsible for about one-quarter of all the deaths in China each year.

Before concluding that this evidence alone is sufficient to con-

demn the use of human excrement as a fertilizing material, it must be emphasized that the practice in the Orient involves the use of raw night soil. Sewage sludge available for fertilizer in the western world can be made hygienically safe. For example, in the process used in Pasadena in the manufacture of fertilizer from sewage sludge, the temperature in the dryer in the inner shell ranges from 1000 to 1500 degrees Fahrenheit. All pathogenic germs are destroyed in this drying process. If sludge is not heat dried, the digestion of the sludge, combined with the commoner methods of dewatering, kills most of the bacteria. The storage period associated with the handling of sludge in sewage works also affords additional protection against intestinal diseases.

Extensive tests conducted by the New Jersey Agricultural Experiment Station at Rutgers University resulted in the formulization of some important conclusions regarding health problems arising from the utilization of human manure as a fertilizing material. They expressed the opinion that even raw sewage might be safely used provided its application be stopped one month before harvest. As a completely effective method for decontamination, they recommend that vegetables grown in soil fertilized with untreated human excrement be pasteurized at a temperature of 60° centigrade for five minutes. This process does not harm the appearance or quality of the vegetable and renders it free of bacterial, amoebic, and helminthic organisms.

In considering the economic feasibility of manufacturing fertilizers from sewage sludge, the profitable operation of the Milwaukee and Pasadena plants is often cited. The successful operation of these plants, however, is dependent at least in part on the large volume of sludge being processed and on a market which is willing to pay a good price for their product. The cost of installing the necessary drying, grinding, and packaging machinery makes the profitable manufacture of fertilizers doubtful in the case of plants handling a comparatively small quantity of sludge. More important in the question of municipal manufacture of fertilizer from sludge is whether plants can continue to operate at a profit if competition from increasing numbers of cities should bring about a decrease in the market price of the fertilizer. In the final analysis, however, the problem of the economic feasibility of these projects must be balanced against an even more vital question—is it sound practice to continue to deliberately throw away plant food and humus that

is needed if our soils are to maintain their productivity in the centuries to come?

CONCLUSION

An impoverished soil can only lead to reduced soil productivity —a widespread decrease in soil productivity in the face of increasing population can only lead to tragedy. The farmers of the Far East have demonstrated that productivity can be maintained thruout centuries of intensive cultivation. Meanwhile western man, despite his knowledge of artificial fertilizers, has witnessed a steady decline in the fertility of soil that in some cases has been broken only a few score years. The answer to the problem of maintaining soil productivity may well lie in combining the experience of the Orient with the mechanical and hygienic technology of the Occident in the utilization of human manure. Jean Valjean would have us remember that "if gold be dung, on the other hand our dung is gold."

SLIDE-PROJECTION TECHNIQUES IN THE GEOGRAPHY CLASS

HOWARD F. GREGOR
San Jose State College

That the colored slide greatly aids the presentation of geographic material to a class is obvious. No amount of textual organization, talented oratory, gesticulations, or sketches can portray like the slide the total regional complex of a landscape. The slide is also often the best means of ensuring that the physical layout of an area will be comprehended the same way by all students of the class. Slides are valuable tools in the presentation of more complex, yet basic, phenomena, such as a convectional storm or an industrial process.[1]

Since World War II, the use of the colored slide as an aid to

[1] Additional values of slide projection in geography instruction are offered by M. Melvina Spec, "The Still Picture," *Geographic Approaches to Social Education*, Nineteenth Yearbook of the National Council for the Social Studies, Chap. XIII (Washington, D.C., 1948), p. 130 and Elizabeth Eiselen, "Values and Problems in the Use of Color Transparencies With a Source List of Color Transparencies," JOURNAL OF GEOGRAPHY, Vol. LIX (May, 1950), p. 200. (Also available as Professional Paper No. 11, National Council of Geography Teachers.)

geography instruction has increased greatly. Many geographers and geography departments boast of the number of slides they have acquired. The more significant question remains: Are such slides properly utilized in their role as an aid to the classroom presentation?

SUPPLEMENTING, NOT SUBSTITUTING

Underlying all slide projection techniques in the geography class is the basic concept of "supplementation," for despite its advantages, the slide is still only a tool. The very advantage of a slide over a motion picture—its ability to be presented with the viewpoint of the instructor—implies this rôle. The use of an entire, or worse, several consecutive, class periods for nothing but slide projection is the most flagrant violation of the supplementation concept. Such a practice—unfortunately most prevalent in college geography teaching—provides strong temptation to the instructor who has failed to prepare sufficient classroom material or has poorly budgeted it over the required class periods. Even cogent descriptions of each slide by the teacher cannot erase the jumbled, haphazard picture often produced in tne mind of the student. Long slide showings not only help to confuse principles with examples, but deny time for the use of additional aids to understanding, such as quizzes and question-and-answer periods.

The projection of slides for only part of the class period greatly increases the need for a wise selection and an orderly projection-sequence of transparencies. Time spent in selection will vary according to the needs of the instructor and the size and organization of the slide collection. Several kinds of projection sequences may be utilized.

UNIVERSAL SEQUENCES

Some projection sequences are of universal application, i.e., of importance to any slide showing, no matter what the geographical subject. The *projection-frequency* type is one of several. An ideal version of this sequence is the "3-step pattern." Slides on a particular topic to be presented are projected at the very beginning of the study unit, intermittently during progress of the unit as different phases of the topic are considered, and at the very end of the unit. The first slide showing is an excellent orientation to an area or principle, especially if the region or idea is unfamiliar to most of

the class. Intermittent showings should particularly feature slides of more than one area to illustrate each of the principles, if at all possible. A greater variety of slides will further emphasize the principle and show its worldwide application. The final showing aids the instructor in review and enables the student to see for himself graphically what he has learned. A repeat-showing of slides previously projected for the unit is primarily valuable in the review process. This last step also provides an excellent opportunity for testing.[2] Insufficient time often will force elimination of the second, or of both first and second steps of this pattern.

The *area-familiarity* sequence emphasizes the showing of familiar areas first, followed by projection of less familiar regions. Even if the entire study unit deals with only one area, scenes of districts within the area which are most familiar to the students (e.g., highways, central business districts) should receive precedence. This principle also holds true if foreign areas alone are being considered in the unit. A slide on the Mojave Desert, for example, which precedes projection of several scenes of life in the Sahara, can even make that area of exotic cultures more understandable to the California student. An exception to this progression from known to the unknown—or "seen to the unseen"—is where a particularly striking illustration of an important principle can best be obtained by a foreign scene: widespread hill land erosion in China exemplifying the importance of slope. But if quite a few slides are shown on the same subject, the predominance of foreign scenes weakens the impact on the class.

Scale sequence is even more necessary in slide projection than in the presentation of maps and oral information. Consider the effect on a class studying the Great Lakes dairy belt where a slide of a Holstein cow precedes a slide showing a general landscape in the area with its barns, herds of cattle, and other pertinent features! Such a large scale-to-small scale progression is better adapted to a genetic approach. A good example would be the explanation of alluvial fan development: a closeup of a small pile of gravel at the foot of a slope, followed by an overall scene of Death Valley with its extensive "apron" of fans. Opposed to this is the

[2] Utilization of slides in testing at the elementary grade level is described in Dorothy P. Mortimer, "Our Class Uses Lantern Slides," *Audio-Visual Materials and Methods in the Social Studies*, Eighteenth Yearbook of the National Council for the Social Studies, Chap XII (Washington, D.C., 1947), p. 98.

reverse progression, small scale-to-large scale, which is principally suited to the empirical approach. The dairy belt example would be more appropriate here.

At times, it is more feasible to show slides of uniform scale, either exclusively of small scale or large scale. Where time is limited, presentation and comparison of general areal concepts, agricultural regions, industrial and commercial complexes, and other general phenomena can best be projected by this method at small scale. A uniformly large-scale showing is more adapted to illustration of economic processes, house types, racial types, and other features which require closer views. Violations of scale uniformity are quite common, perhaps due to insufficient slide coverage: A slide comparison of the major iron-and-steel complexes of northeastern United States is seriously impaired by inclusion of a transparency showing only the coke ovens at Gary, Indiana, in contrast to an overall scene of the entire complex at Sparrows Point, Maryland. A slide illustration of the rice-sowing process in Asia is hindered by insertion of a transparency in which the farmers transplanting the seedlings are to be only dimly seen in the distant reaches of a vast rice paddy area.

A logical projection sequence is especially necessary when slides are shown at the end of a study unit in which several topics have been discussed. Such a sequence should conform to the order in which the topics were previously presented—i.e., *course-progression* sequence. The repetition of the topical sequence by the slide sequence strengthens the memory of the student and helps to equalize memory spans in relation to the different topics considered in the study unit. These benefits are particularly applicable to a study unit involving a field trip. A sequence of slides depicting features as they are to be encountered later in the field makes for a more observant and thoughtful field member. Most geographers agree with the concepts of preliminary field reconnaissance and prefatory library research. Yet, it is surprising how few of them provide their classes with the additional benefit of the much more convenient preliminary "slide" reconnaissance. The same sequence projected in the classroom after completion of the field trip is excellent for review and provides ample opportunity for further discussion of problems encountered in the field.

It is evident that none of these universal slide-projection sequences, in most cases, is mutually exclusive. All have to be con-

sidered in the preparation of a meaningful slide program. Universal sequences should also be considered in special types of projection sequences, which, in turn, are more or less dependent on the nature of the geographic material being taught.

Special Sequences

One of these special slide-projection sequences is a vital supplement to the discussion of sequence occupance: the *historical* sequence. The greatest difficulty here lies in obtaining slides of earlier landscapes and maps. A superiority of the slide over the moving picture is emphasized by the *economic-processes* sequence. Whereas many geographic aspects of an "economic geography" film are sublimated to emphasis on processing methods, slide projection enables the instructor to point out many significant relationships between the environment and processing procedures.

Few maps ever show regional boundaries as they actually exist, i.e., transition belts. Perhaps even fewer geographers have any time to discuss this in class, except to state the fact. A *landscape-transitions* slide sequence is the best answer. Such a progression allows the instructor to illustrate at one and the same time both the major aspects of a particular area and its transitional aspects along its periphery. Areal and functional aspects of less-observable phenomena are also more clearly shown by the landscape-transitions sequence. The rain-shadow effect of the Cascades as seen thru differences in vegetation and cloud cover or the agricultural effect of glaciation in Wisconsin as observed thru changes in crops and soil are examples of the effectiveness.

Practical Considerations

Perhaps the greatest problem in observing slide-sequence principles is the amount of time required in selection and organization of the slides for a class showing. The situation becomes more critical, of course, as the slide collection increases. Numerical, regional, and topical cataloguing of slides are basic. Slide boxes should be numbered and each slide should bear this number, as well as one corresponding to its respective slot and row in the box. A cross-filing index should accompany the collection. A standard system of regional titles can easily be obtained from several basic geography texts. The topical index will be cross-filed. A salient list of topic titles would comprise subdivisions according to the physical and

cultural elements of geography, for example, climate, terrain, soils, vegetation, population, houses and settlements, agriculture, industry, mining, and transportation. Besides greatly facilitating slide selection, the indexing of slides under topical titles is a stimulating intellectual exercise for the instructor. Often, even with pictures taken by the teacher himself, the amount of interesting material that can be obtained by a later viewing is impressive.

Availability of slides is much less of a problem than it was ten years ago. Colored film is plentiful and 35-mm. cameras are available in a wide range of styles and sizes. Difficulty in obtaining slides of distant and foreign areas has been eased considerably by the organization of numerous commercial and private slide firms[3] and several slide-exchange clubs.[4] The latter also have materially reduced costs.

UNDERSTANDING CURRENT AFFAIRS THRU GEOGRAPHY

CHESTER E. SMOLSKI
Rhode Island College of Education

The oft quoted phrase of "reading geography in the daily papers" was vividly brought to the attention of our eighth and ninth grade students in a recent activity. This course was an elective and was given under the title of Countries in the News, altho Current Events and Current Affairs are common names for such a course. It provides a wonderful opportunity for geographers to lend their views to an interpretation of today's current happenings and provides a stimulus to geographical study, since this material is constantly before the eyes of the students.

It was while this course was being given that the war in Indochina was being waged. Also, there was much heated debate on what the United States' policy should be in this part of the world, ranging from sending troops, to sending equipment, or simply to stay out. These were also the thoughts that occupied our minds. In order

[3] A list of organizations is provided by Eiselen, *op. cit.*, p. 203.

[4] John H. Thompson discusses the organization and operation of a typical geography slide-exchange club in "A Colored Slide Collection for Geography Teachers," JOURNAL OF GEOGRAPHY, Vol. LIII (March, 1954), p. 117.

to clear up our own thinking, it meant that all of us had to read some current information about this area and also to get some background, which meant working thru our geography texts. In many cases after having done this, we arrived at divergent viewpoints. How were these differences of opinion to be resolved? A debate was suggested and heartily approved by the rest of the class.

The actual process of choosing members and deciding what work to do was readily solved. There were several volunteers for the debating team itself and the only problem was to cut the number to a workable size. The class voted and chose those members who would be on the debating team. Before deciding on which side to debate, i.e., sending aid and in what form or not giving aid, each member of the team was asked to do some outside reading to better acquaint himself with the problem. Having done this, we discovered that there were still too many on one side. In this case we split them up so there would be equal representation. Actually, this turned out well since several of these students changed their minds after doing more research and debating the issue.

Those members not on the debating team were also an integral part of the debate. In order to utilize their talents and also to give the entire story of this country of Indochina, we had several groups working. One group worked on the construction of a large-scale map of Indochina to show its political divisions and the location of cities and important areas, such as the Red River delta and the Mekong River delta. Another group did research on the history of this nation while another group worked on the economy. Since there were a few unassigned members, they were asked to look up questions on either the geography or history of this country or raise any other pertinent question that might be asked of the debating team. In this way all members of the class were actively participating in the project and were still doing work at their own level.

To work out their plan of presentation, the two sides of the debating team worked separately. Since it was essential that they in particular have the latest information, the question of material was raised. Needless to say, this was no problem since newspapers and magazines were filled with this information. We used our daily papers, weekly summaries that appeared in the Sunday editions (some of our more able students used the *New York Times* for this), and weekly magazines. Two very good sources of information were the Current Events publication of the American Education

Publications and the World News Map of the Week since these were geared more to the level of the majority of the class. Not only were they good for the discussion at hand, but they also proved extremely valuable thruout the course.

The debate was conducted so that we all had the essential background necessary before we talked about issues. The map group displayed their map and pointed out locations, important features such as rivers, landforms, climate and other physical features, Indochina's location in relation to the rest of South East Asia as well as its location in relation to the United States and the rest of the world. Then the group which did research on historical development gave its story as well as aspects of present-day culture, and the background picture was completed by the group which worked on the economy of this nation. Then, with this picture in our minds, the debating team went into its work. After this, the other students raised their prepared questions or any others that may have come up.

There were few problems associated with this project. On occassions during the debate, it was necessary to lead the students back to the point at hand and guide them to logical conclusions. On the whole, all of the students enjoyed the work and found it extremely stimulating. Interest ran high because the work at hand was constantly being brought to their attention. (It was at this time that the French were making their gallant stand at Dien Bien Phu.) At the beginning of each class we would discuss the current happenings of the war before we continued work on our project. We were very fortunate in our timing of the project.

Such an activity has great merit. First, it made the students realize the problems of our policy makers and the fact that these seemingly simple questions have complex answers, if there are answers; also, how important geography is in the understanding of these problems. Secondly, the necessity of keeping abreast of the news was brought home to them; daily reading of the newspaper and other news publications was a requisite of the work at hand. Finally, and most important from a geography teacher's point of view, it made geography come alive. The value of geography lies in its dynamic nature. Geography, all too often, becomes a stereotyped, academic discipline, when actually it can be the most appealing and interesting subject in the school curriculum. It is our purpose to make others cognizant of its value. Even today, when

some of these students return to visit, they often mention the debate on Indochina and ask if I remember it.

Two outcomes of this activity that were significant should be mentioned. First, because of the success of the debate and the way in which it was conducted, we decided that such a program would be of value to the rest of the Junior High School. It was presented at an assembly and was very well received by both students and faculty. We were complimented not only on the presentation itself but also on the pertinent topic for discussion, and as one faculty member stated, she learned a great deal from it. The first outcome was of value to the students because it gave them an opportunity to show the fruits of their combined efforts to the rest of the student body, whereas the second outcome was of value to the teacher. The following year in an Economic Geography course for college students, I used essentially the same idea and approach in the discussion of another controversial measure that was closely allied to our subject. We had been studying various power resources, specifically water, when the controversial Dixon-Yates bill was being debated in Congress. An informative debate was held and it proved to be of great benefit to participants and other class members as well.

These activities are in themselves of value, both at the college level and in the grades, but it appears that the greatest value to be derived from these activities is to show the worth of geographical study in appraising and interpreting the problems that face the world today. We as geographers are making inroads into this area but not as well as we should be. We must do more to convince others of this geographical need, but perhaps the best way is by example. We must show them this dynamic characteristic of geography in our own teaching and in its application for the solution of world problems.

THE NATIONAL COUNCIL AT WORK

The forty-second annual meeting of the National Council of Geography Teachers will be held at the Claridge Hotel in Atlantic City, New Jersey, on November 23 and 24, 1956. The preliminary program follows:

Theme: *IMPROVING GEOGRAPHIC EDUCATION TO MEET AMERICA'S NEEDS*

Friday, November 23

9:00 A.M. .....*FACING THE CHALLENGES*

Geographic Education and the Business World, J. Warren Nystrom
Chamber of Commerce of the United States, Washington, D.C.
The Impact of Air Power on Geographic Education, H. F. Raup
Kent State University, Kent, Ohio
Improving the College Training of Geography Majors, Henry J. Warman
Clark University, Worchester, Massachusetts

10:45 A.M. .....*STUDENT'S VIEW: "WHAT CAN GEOGRAPHY DO FOR ME?"*

Student Panelists: Teresa Cimino, Burlington High School, Burlington, New Jersey; Karen Beth Everett, West Chester Joint Junior High School, West Chester, Pennsylvania; John Fiege, State Teachers College, Towson, Maryland; Nancy Morstein, Forest Park High School, Baltimore, Maryland; John Ross (moderator), Dickinson College, Carlisle, Pennsylvania.

11:45 A.M. .....*STATE COORDINATORS' LUNCHEON*

1:30 P.M. .....*IMPROVING THE USE OF GLOBES AND MAPS*

Improving the Use of Globes, Carl H. Mapes
Rand, McNally & Co., Chicago, Illinois
Improving the Use of Maps, Malcolm Davies
Baltimore Junior College, Baltimore, Maryland

2:30 P.M. Group Discussions .....*GLOBES AND MAPS—HOW TO CHOOSE AND USE THEM*

Problems relative to the selection and use of globes and maps, from primary grades thru college, discussed by groups particularly interested and experienced in these problems at various levels. (1) Primary Grades, (2) Intermediate Grades, (3) Junior High School, (4) Senior High School and College.

3:45—Sectional Meetings:

A. RESOURCE-USE EDUCATION

Theoretical and Practical Aspects of Resource-Use Education

Ethical Approach to Problems of Resource-Use, Sigismond deR. Diettrich
University of Florida, Gainesville, Florida
Practical Approach to Resource-Use Education:
Purposes and Problems in Writing a Textbook for Resource-Use, Reuben L. Parson
East Tennessee State College, Johnson City, Tennessee
Resources for the Future and Resource-Use Education, Edward A. Ackerman
Resources for the Future, Washington, D.C.
Report on Work of the NCGT Committee on Conservation Education:
Chairman: Sigismond deR. Diettrich, University of Florida, Gainesville, Florida

Problems in Research and Data Gathering, Sam Clagg
Marshall College, Huntington, West Virginia
The Committee Looks at New Hampshire, Ella Keene
Keene State Teachers College, Keene, New Hampshire
NCGT and Conservation, J. Sullivan Gibson
University of North Carolina, Chapel Hill, North Carolina

B. Communities on three continents

Cities Along the Amazon, Elizabeth Eiselen
Wellesley College, Wellesley, Massachusetts
Effects of Technological Changes in Mountain Communities of Europe, Geo. W. Hoffman
University of Texas, Austin, Texas
Origins of Newark, New Jersey, Daniel Jacobson
Brooklyn College, Brooklyn, New York

Open Committee Meetings

3:45 P.M. Testing Geographic Understandings
Chairman: Berenice Casper, State Teachers College, Trenton, New Jersey

4:30 P.M. Television in Geographic Education
Chairman: Jewell Phelps, George Peabody College, Nashville, Tennessee

5:15 P.M. Research in Geographic Education
Chairman: Paul Griffin, Stanford University, Stanford, California

7:00 P.M. .....*ANNUAL BANQUET*
Presentation of Awards

Address: United Nations Geopolitical Concepts, Benjamin Cohen
Under-Secretary of the United Nations

Saturday, November 24

9:00 A.M......*GEOGRAPHIC EDUCATION IN INTEGRATED PROGRAMS*
(Joint Session with the National Council for the Social Studies)
Experience with Integration at College Level, Clyde F. Kohn
Northwestern University, Evanston, Illinois
Experience with Integration in Junior High School, Kathryn Scott
Baltimore City Schools, Baltimore, Maryland
Experience with Integration in Intermediate Grades, Margaret F. Abel
Lanning School, Trenton, New Jersey

10:45 A.M. .....*TENTH ANNUAL GENERAL ASSEMBLY*

Afternoon .....*FIELD TRIPS*

All persons interested in geographic education are invited to attend and participate in this meeting.

Norman Carls, *President,*
National Council of Geography Teachers

GEOGRAPHICAL PUBLICATIONS

Yuan-Li Wu. An Economic Survey of Communist China. Bookman Associates, New York, 1956. x and 566 pages with tables, charts, bibliography and index. $12.50.

Since the loss of the Chinese Mainland to the Communists in 1949, the Bamboo Curtain over China has proved to be as impenetrable as its iron counterpart in Europe. Information is available in the form of spasmodic publications by the Communist government, but the interpretation of such information to derive a picture of present economic conditions in Communist China is a gargantuan task. And to this task, Dr. Yuan-Li Wu, now research-coordinator of a project on the Far East at Stanford University, has applied himself for more than four years.

The purpose of the economic survey is to appraise Communist China's actual and potential capacity in its stated objectives of industrialization and military power. The survey at the same time aims to throw light on the knotty problems of industrialization and economic development in less developed countries in general.

The book begins with a brief survey of the economic situation in China before the country was overrun by the Communists. Short sections deal with the country's population problems, agricultural and mineral resources, and industrial development before 1949. This background information is followed by detailed discussions on the Communist government's attempt at economic stabilization, on land redistribution and its implications, on agricultural production and industrialization. An appraisal of general industrial recovery and development is supplemented by an account of selected industries, such as the extraction of coal and petroleum, and the iron and steel, the chemical, cement and cotton textile industries. The later chapters deal with forced labor and mass labor projects, transportation and domestic trade, monetary and banking control, labor organization and wages and foreign economic relations.

The *Economic Survey of Communist China,* is fully documented. In addition to detailed footnotes, there is a useful, selected bibliography. Over 80 tables of statistics are scattered thru the text. The book provides an indispensable source of reference on modern China, and, as such, should find a place on the shelves of college libraries. But, tho well-written, the book does not make light reading. Its style of presentation is designed to cater to the specialist on Asia rather than the beginning student.

Y. F. TUAN

Indiana University

Honor Wyatt. The Young Traveler in Portugal. E. P. Dutton and Co., Inc., New York, 1955. 224 pages with illustrations, glossary and index. $3.00.

Lucille Iremonger. The Young Traveler in the West Indies. E. P. Dutton and Co., Inc., New York, 1955. 215 pages with illustrations and index. $3.00.

These two titles are a part of the Young Traveler Series. Each book is written by a different author, who weaves geography and history concepts of the country into the experiences of a family with teen-age children. They share in conversation facts, information, and observations accompanied with some of the humor that results from unfamiliarity with customs and habits of the people living in different places where conditions are different. The traveling experiences of the characters in the book pass on to the reader some of the feel of the climate, what they see people doing in the landscape, reactions to special foods they eat that are often different from what they have at home.

Often special words of the country's language are scattered thru their conversation.

In the book *Portugal*, the Blake family enjoy exciting adventures as they travel on a limited budget to out-of-the-way places. They visit with people in the fishing village of Nazare where they see the teams of oxen haul in boats with their catch. They talk with men who strip cork trees. The old and new sections of cities such as Lisbon are contrasted as they see old narrow cobbled passages, climb outside flights of steps where they smell foods and wines, and then stop in newer sections of the same city.

The *West Indies* is visited by the Fulford family. Mrs. Fulford returns to her childhood home. Her teen-age children visit their cousins. Many places such as sugar cane plantations are visited. The children compare many of their activities in the United States with what their cousins have in the West Indies.

Travel books of this kind written for teen-agers have a place in their library.

MAMIE L. ANDERZHON

William Beye School
Oak Park, Illinois

John Y. Keur and Dorothy L. Keur. **The Deeply Rooted, A Study of A Drents Community in the Netherlands.** Monographs of the American Ethnological Society XXV. J. J. Augustin, Inc., Locust Valley, N.Y., 1955. 210 pages, 2 maps, 5 plates, 3 tables, 4 appendices, bibliography. $3.00.

This book tells the story of village life in a part of the Netherlands quite different from the windmill and polder country. Despite an uninformative title, *The Deeply Rooted* is a detailed and useful study of the agricultural village of Anderen in northeastern Netherlands. Altho all houses have electricity, the village has no church, no mill, no post office, and only four telephones. There is a single mail delivery daily, a two-room elementary school, two small grocery stores, and a bakery; bakery and grocery vans from neighboring villages visit the village weekly.

The houses of Anderen cluster around a village green near a morainic hill rising from a sandy outwash plain. The hill has long been cultivated, as indicated by its fragmented medieval field pattern, but the surrounding sandy heathland has only recently been reclaimed. Just over half the village land is used as pasture for dairy cattle. Cropland is worked on a rotation of rye, rye, potatoes, and oats, altho some farmers also grow fodder roots. The farmers all belong to a cooperative dairy.

The first section of the book sets the physical background; the second describes the habits and customs of the village people, including their school life, children's work and play, engagement and marriage, the nature of the family unit, diet, religion, ceremonies, folk beliefs, the work year, and other group activities. This book provides an excellent basis for a study unit on life in a Dutch village.

JOHN FRASER HART

Indiana University

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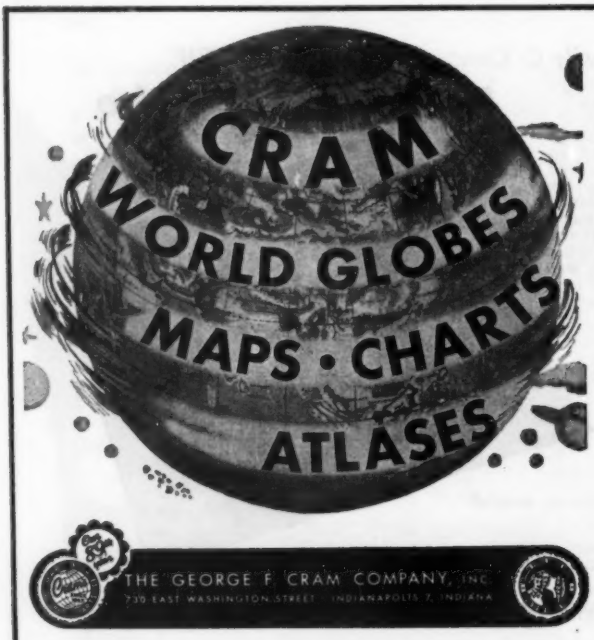

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EDITORIAL NOTES AND NEWS

Dr. Lorrin Kennamer, Associate Editor of the Journal, becomes an Assistant Professor of Geography at the University of Texas this Fall. He taught at George Peabody College for Teachers during the summer. One of his areas of work at the University will be Geographic Education.

The National Academy of Sciences—National Research Council in cooperation with the Office of Naval Research will provide grants for geographical field research in foreign areas in 1957. The extent of financial assistance will vary according to the needs involved. For further detailed information address Foreign Field Research Program, Division of Earth Sciences, 2101 Constitution Avenue, Washington 25, D.C.

The Society of Women Geographers is granting a $1500 Fellowship in geography in cooperation with the University of Chicago for the year 1957-1958. Applications for the fellowship must be received on or before February 15, 1957. For details address: Admissions Counselor, Administration Building, University of Chicago, Chicago 37, Illinois.

According to the *United Nations Monthly Bulletin of Statistics*, the world industrial production for the first quarter of 1956 was slightly less than that of the last three months of 1955. However, there was a 67 per cent increase above the first quarter of 1955. These figures exclude USSR, China Mainland and Eastern Europe.

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E. Aubert de la Rue. **Man and the Winds.** Philosophical Library, Inc., New York, 1955. 206 pages with illustrations, bibliography and index. $6.00.

A book written on the winds as they affect mankind.

John H. Garland, ed. **The North American Midwest—A Regional Geography.** John Wiley and Sons, Inc., New York, 1955. viii and 252 pages with illustrations, maps, tables, bibliography and index. $6.75.

Each of the fifteen contributors discusses a topic of his specialty of a Midwestern region with which he is thoroly familiar.

Julian H. Steward and others. **Irrigation Civilizations: A Comparative Study.** Social Science Section, Dept. of Cultural Affairs, Pan American Union, Washington, D.C., 1955. v and 78 pages with tables and references. 50 cents.

A symposium on method and result in cross-cultural regularities.

Annual Report 1955. Resources for the Future, Inc., Washington 6, D.C. ix and 52 pages with illustrations.

Karl Kruger. **Ingenieure Bauen Die Welt.** Safari-Verlag Carl Boldt and Reinhard Jaspert, Berlin, Germany, 1955. 462 pages with tables, photographs, figures, map, appendix, bibliography and index. DM 19.80.

Frances Carpenter. **Our Homes and Our Neighbors.** American Book Co., New York, 1956. 192 pages with illustrations. $2.32.

A study in home geography for Grade 3.

John D. Black. **Biological Conservation.** McGraw-Hill Book Co., Inc., New York, 1954. xiv and 328 pages with illustrations, bibliography and index. $5.00.

Borivoje Ž. Milojević. **Geography of Yugoslavia.** The Library of Congress, Washington, D.C., 1955. xvii and 79 pages with index. 70 cents.

This bibliography lists the most important publications on the geography of Yugoslavia and indicates their availability in American libraries.

Raus M. Hanson. **Virginians at Work.** Twayne Publishers, Inc., New York, 1956. 427 pages with maps, tables, illustrations, glossary and index. $4.00.

A geography of Virginia's resources and occupations, primarily intended as a text for use in geography, history and economics classes.

Thomas Arthur Koskey. **Baited Bulletin Boards.** Fearon Publishers, San Francisco, California, 1954. 32 pages with illustrations. $1.00.

A handbook to aid teachers and students in making the most effective use of bulletin boards.

E. Millicent Sowerby. **Catalogue of the Library of Thomas Jefferson, Volume IV.** The Library of Congress, Washington, D.C., 1955. $6.25 from the Government Print-Office, Washington 25, D.C.

This fourth volume of the five-volume *Catalogue* includes Mathematics, Physics, Astronomy, Geography, Architecture, Gardening (Painting, Sculpture), Music, Poetry (Epic), Romance (Tales, Fables), Pastorals (Odes, Elegies), Didactic, Tragedy, and Comedy.

Harold Frank Birchal. **Modern Surveying for Civil Engineers,** 2nd Ed. Philosophical Library, Inc., New York, 1956. xi and 528 pages with tables, illustrations, appendix and index. $15.00.

To help the surveyor in the many difficulties confronting him while actually engaged on the job.

P. H. Kuenen. **Realms of Water.** John Wiley and Sons, Inc., New York, 1956. 327 pages with illustrations, bibliography and index. $6.50.

The book embraces many aspects of physical geography, meteorology and oceanography and innumerable natural phenomena—from the interesting ways of glaciers to the damming of the Zuyder Zee, one of the greatest of modern victories over nature. The author is at the University of Groningen, Netherlands.

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1. Approximately 1,565,000 bbl. of crude oil pass to the West daily.

2. Expert pilots are needed. They must know nautical terms in 13 languages and two years are required to train them. Most of the present 215 pilots are nationals of countries other than Egypt.

3. It is estimated that tankers of 40,000 tons and over can save money by going around the Cape of Good Hope. Even some 32,000 ton tankers reduce Canal costs by passing short-loaded. Many large tankers are now building; one of 83,000 ton capacity is to enter service this fall. However, large tankers are still relatively few in number, compared to the small ones.

4. With the average tanker the Cape route to London will cost about 60 per cent more and to New York, 30 per cent.

5. Ras Tanura to New York is 11,815 miles via the Cape and 8,290 via the Canal. The Cape route would require about 66 days and the Canal route, about 48 days, for a round trip.

6. Ras Tanura—London trip is 6,220 miles via Canal and 10,955 via the Cape. At 15 knots an hour how much time is saved via the Canal?

7. Tolls vary with the size of the ship. If we assume an average tanker, the north to south toll for the empty ship would be about $2,400, and $5,200 loaded on the return trip.

8. In 1955 northbound traffic of the Canal was approximately 87,426,000 tons, and 20,082,000 tons southbound. Of the northbound traffic 64 per cent was crude oil and oil products.

9. In 1955, out of the daily shipments, 417,000 bbl. went to Britain; 246,000 bbl. to France; 175,000 bbl. to United States; 149,000 bbl. to Italy; and 148,000 bbl. to Netherlands.

10. The present two pipelines move about 900,000 bbl. daily to Mediterranean ports. Could pipelines be provided so as to make it unnecessary to ship oil via the Canal? Would these pipelines be as vulnerable as is the Canal?

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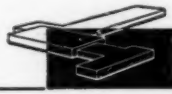

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